SEQUENCE LISTING

<110> BIOPROTEIN TECHNOLOGIES

<120> PREPARATION OF RECOMBINANT ROTAVIRUS PROTEINS IN MILK OF
      TRANSGENIC NON-HUMAN MAMMALS

<130> D21684

<150> EP 04/290 589
<151> 2004-03-04

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<170> PatentIn version 3.3

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atgttaacat caaatcttac tttcactgtt tactctgatc tgcttgcatt cgtatcggcc      2580
gatacagtag aacctataaa tgcagttgca tttgataata tgcgcatcat gaacgagttg      2640
taa                                                                    2643
```

<210> 6
<211> 2797
<212> DNA
<213> Artificial sequence

<220>
<223> VP2 strain RF open reading frame, modified sequence

and with signal peptide

<400> 6

```
gcgcgcggat cccaaggccc aactccccga accactcagg gtcctgtgga cagctcacct          60
agccgccatg gctccaggct cccggacgtc cctgctcctg gcttttgccc tgctctgcct         120
gccctggctt caggaggctg cgccgtgat ggcttacagg aaacgtggag cccgccgtga         180
ggctaatatt aataataatg acagaatgca ggagaaagat gacgagaaac aggatcagaa         240
caatagaatg cagctgtctg ataaagtgct ttcaaagaaa gaggaagtcg tcaccgacag         300
tcaggaagaa attaaaattg ctgatgaagt gaagaaatcc acgaaagaag aatctaaaca         360
gctccttgaa gttctgaaaa caaaagaaga gcaccagaaa gagatccagt atgaaattct         420
ccagaaaacg attccaacat ttgaaccaaa agagtcaatc ctgaaaaaac tcgaggatat         480
caaacccgaa caggcgaaga agcagactaa gctgtttaga attttgaac ccagacagct         540
cccaatctat agagctaatg gcgaaaaaga gctgcgtaac agatggtatt ggaagctgaa         600
gaaagatact ctgccagatg gagattatga tgttagagaa tactttctga atctctatga         660
tcaggttctt actgaaatgc cagattatct cctcctgaaa gatatggcag ttgaaaataa         720
gaatagcaga gatgccggaa aagttgttga ttctgaaaca gcaagtatct gtgatgctat         780
ctttcaagat gaggaaacag aaggcgcagt gagaagattc attgccgaga tgagacagcg         840
cgtgcaggct gacagaaacg ttgtcaatta cccatcaatt ctgcatccaa tcgattacgc         900
ttttaatgag tattttctcc agcaccagct cgttgaacca ctgaataatg atattatctt         960
caattacatt cctgaaagga ttaggaatga cgttaactat atccttaata tggacagaaa        1020
tctgccatca acagctagat atattagacc taatctgctg caggacagac tgaatctcca        1080
tgacaatttt gaatccctgt gggatacaat cacaacttca aactatattc tggcaagatc        1140
cgtcgtgcca gatctcaagg aactggtttc aaccgaagct cagattcaga aaatgtcaca        1200
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gactgtcgtg ccaaatgaca tgttcattag ggaatcactg gttgcatgtc agctggctat        1440
cgtgaataca attatctatc cagcgttcgg aatgcagaga atgcattata gaaacggaga        1500
cccacagaca ccatttcaga ttgcagaaca gcagatccag aattttcagg tggctaattg        1560
gctgcatttt gtcaacaaca atcagtttag acaggtcgtt attgatggcg tgctcaatca        1620
ggtgctgaat gacaatatta gaaatggaca tgtcattaat cagctgatgg aagctctgat        1680
gcagctctca agacagcagt ttccaacaat gcctgttgat tataagaggt caatccagcg        1740
tggaattctc ctcctgtcaa ataggcttgg acagctggtt gatctcactc ggctgctcgc        1800
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aaccgttatc cccagccccc agacactgtt tcactattac aatgttaatg ttaattttca        1980
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gaatctgtat cagaaaaaga tgaaggcaat tgttgaagat tttctcaaaa gactgcatat        2100
tttcgatgtc gctagagttc cagatgatca gatgtataga ctcagggata gactcagact        2160
gctcccagtg gaagtcagaa gactggatat tttttaatctc atcctgatga acatggatca        2220
gattgaacgc gcatcagata aaattgccca gggcgttatt attgcttacc gcgatatgca        2280
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cctgaataat cagccagtgg cgctggttgg agctcttcca tttgttacag acagctcagt        2460
catttccctc atcgctaagc ttgacgctac agttttttgcc cagattgtta aactcaggaa        2520
agttgatacc ctgaaaccaa tcctctataa aattaattca gatagcaatg acttttacct        2580
cgttgccaac tatgattggg tgcctacttc aaccacaaaa gtctataagc aggttccaca        2640
gcagtttgat ttcagaaatt ccatgcatat gctgacatca aatcttactt tcactgttta        2700
ctcagatctg cttgcattcg tgagcgccga tacagtcgaa cctatcaatg cagttgcatt        2760
tgataatatg cgcatcatga acgagctgta agcgcgc                                  2797
```

<210> 7
<211> 783
<212> DNA
<213> Porcine rotavirus

<220>
<223> VP4 gene for capsid protein, partial cds

<400> 7

```
aatctttctg acgaaattca agatattgga tcagctaagt cgcaggatgt tactataaat       60
cctggtccat tcgcacaaac aggttacgca ccagttaatt ggggagcagg tgagactaat      120
gactccacaa ctgtcaagcc attattagat ggtccggacc aaccaaccac tttcaaccca      180
ccaacaagct attggatatt acttgcgcca actgtagagg gcgtaattat ccaaggaaca      240
aacaatatcg atagatggtt ggctactata ctaattgaac caaacgtgca agcaactaat      300
agaatataca atccttttgg tcagcaagaa actttatcgg ttgaaaatac ataccagaca      360
caatggacgt tcattgttgt aagtaaaact acactagctg gaagttatac acagcatgga      420
ctattgctct ctacaccaaa ctcatacgct gtaatgggat tcagcggtag aatatataca      480
tataatggaa ccacgccaaa cgcagcaaca ggatactatt cagctactga ctatgacaca      540
gtaaatatga catcattttg tgacttttac attataccaa gaaatcaaga agaaaaatgt      600
actgagtata tcaatcacgg attacctccc atacaaaata cgaggaatgt tgtgccagta      660
tccttatcgg ctagagagat agtgcacaca agagctcaag ttaatgaaga tattgttgtt      720
tcaaaaactt cactttggaa agaaatgcaa tataacagag acataaccat aagattcaat      780
ttt                                                                    783
```

<210> 8
<211> 799
<212> DNA
<213> Human rotavirus

<220>
<223> P1B VP4 gene, partial cds

<400> 8
```
ccgattcata ttcagtagac ttgcatgatg aaatagaaca gattggatca gagaaaactc       60
aaaatgtaac gataaatcca ggtccatttg cacagactag atatgctcca gttaattggg      120
gacatgggga gattaatgat tcaactatag tggaaccagt tttagatggt ccttatcaac      180
ccactacgtt caaaccacct aatgattatt ggctacttat tagctcaaat acagatggag      240
tagtttatga aagtacaaat aatagtgact tttggacagc agttatcgct gttgaaccac      300
atgttagtca aacaaataga caatatattt tatttggtga aaataagcag tttaatatag      360
aaaataattc agataaatgg aaatttttcg aaatgttcaa aggtagtagt cagggtgaat      420
tttctaatag acgaactcta acttctaata atagactcgt aggaatgcta aaatatggtg      480
gaaaagtatg gacatttcat ggtgaaacgc caagagccac tactgatagg tcagatactg      540
cggatttaaa taatatatca attataattc attcagagtt ttatatcatt ccaagatctc      600
aagaatctaa atgtaatgag tatattaata atggtttgcc accaattcag aatactagga      660
acgtagttcc attatctcta tcatccagat ctattcaata taggagagca caagttaatg      720
aagatattac aatttcaaaa acttcattat ggaaggaaat gcaatgtaat agagatatta      780
taataagatt taaatttgg                                                  799
```

<210> 9
<211> 875
<212> DNA
<213> Human rotavirus

<220>
<223> P3 truncated VP4 protein gene, partial cds

<400> 9
```
tcgctcattt atagacagtt actatcaaac tcatatgtta caaacatctc tgacgaaatt       60
aatgaaattg gaactaaaaa agcaactaac gttactgtta tccagggcc attcgcacaa      120
acgggatatg cgcctgtcga ctggggacat ggtgaattgc ctgactctac attagtgcaa      180
ccaactcttg atggtccata ccaacccact tcacttaatt tgccagtcga ttattggatg      240
ttaattgcgc ctactagaga agggaaagtt gctgaaggta cgaatactac tgacagatgg      300
ttcgcttgtg tactagttga gccaaatgtg caaaatacac aaaggcaata cgtattagat      360
gggcgaaatg tccaattaca tgtctcaaac gattcaagta cttcgtggaa atttatatta      420
ttcattaaat tgacgcccga cggaacgtac actcaatact caaccttgtc aacaccgcat      480
aagttatgcg cgtgaatgaa aagagataac agagtatact ggtatcaagg aacgacaccg      540
aacgcatcag agagctatta cttgacaata aacaatgaca acagcaacgt ttcaagtgac      600
gctgaattcc atttgatacc gcaatcgcag actgccatgt gtacacaata tataaacaat      660
```

```
ggtttaccac caattcagaa tacaaggaat attgtaccag taaatattac atctagacag    720
attaaagaca taagagctca gatgaatgaa gacatagtga tatcaaaaac ttcgctatgg    780
aaagaaatgc aatataatac agatataatc attagattta aatttgctaa ttcaataatc    840
aaatcaggtg ggctaggtta taaatggtcc gaaat                               875
```

<210> 10
<211> 1194
<212> DNA
<213> rotavirus

<220>
<223> VP6 strain RF open reading frame

<400> 10
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atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaagaat aaattttgac aattcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttccccttat    480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctctttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```

<210> 11
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 11
```
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaagaat aaattttgac aattcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttccccttat    480
tcagcttcat tcacgttgaa cagatcacag cccgctcatg ataacctgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctctttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
```

```
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```


```
<210> 12
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 12
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaagaat aaattttgac cagtcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```


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<210> 13
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 13
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaagaat aaattttgac aattcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
```

```
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194·
```

```
<210> 14
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 14
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaaagaat aaattttgac cagtcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacag cccgctcatg ataacctgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
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gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```

```
<210> 15
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 15
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaaagaat aaattttgac cagtcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg   .540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
```

```
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```


`<210> 16`
`<211> 1348`
`<212> DNA`
`<213> Artificial sequence`

`<220>`
`<223> VP6 strain RF open reading frame, modified sequence,`
`     with signal peptide`

`<400> 16`
```
gcgcgcggat cccaaggccc aactccccga accactcagg gtcctgtgga cagctcacct     60
agccgccatg gctccaggct cccggacgtc cctgctcctg gcttttgccc tgctctgcct    120
gccctggctt caggaggctg gcgccgtgat ggatgtcctg tactccctct caaaaactct    180
taaagatgct agagacaaaa ttgtcgaagg cacactgtac tcccaagtca gtgatctcat    240
tcagcagttt aatcagatga ttattactat gaatggcaat gagttccaga ctggaggcat    300
tggcaatctc cccattagaa attggaattt tgattttgga ctccttggaa caactctgct    360
caatctggat gctaactacg tcgaaacggc ccgcaataca attgattatt ttgtcgattt    420
tgtggataat gtctgtatgg acgaaatggt tagagaatca cagagaaatg gcattgcacc    480
acagtcagat tcacttatca agctctcagg cattaaattc aaacgcatta attttgacca    540
gtcatcagaa tacatcgaga actggaatct gcaaaataga agacagagaa cgggattcac    600
atttcataaa ccaaacattt tcccttattc cgcttccttc acgctccagc gctcacagcc    660
cgctcatgat aacctgatgg gcacgatgtg gctcaatgct ggctcagaaa tccaggtcgc    720
tggattcgac tactcatgtg caattaacgc cccagctaat acgcagcagt ttgagcatat    780
tgtgcagctt agaagggtgc tcactacagc tacaatcact cttctgccag atgcagaaag    840
attcagtttt cccagagtga ttacttcagc tgacggagct actacatggt acttcaatcc    900
agtgattctt agaccaaata cgttgaaat tgagtttctg ctcaacggac agatcattaa    960
tacttaccag gcaagatttg gaacgatcat cgctagaaat tttgatacaa ttagactgtc   1020
atttcagctc atgagaccac caaacatgac accagccgtc gctgccctct ttccaaatgc   1080
tcagccattt gaacatcacg caacagtggg actcacgctt agaattgaat cagcagtgtg   1140
tgaatcagtc cttgccgacg caagcgaaac aatgctggca caagtgacat ctgttagaca   1200
ggaatacgcc attccagttg gaccagtttt tccaccagga atgcagtgga ctgatctgat   1260
cactaactat tcaccatcta gagaggataa cctccagcgc gtgtttacag tggcatccat   1320
tcgcagcatg cttgtcaaat gagcgcgc                                      1348
```


`<210> 17`
`<211> 1061`
`<212> DNA`
`<213> Human rotavirus`

`<220>`
`<223> G9 strain 97CM113 outer capsid protein (VP7)`

`<400> 17`
```
ggctttaaaa gagagaattt ccgtctggct agcggttatt ccttttaat gtatggtatt     60
gaatatacca caattctaac ctttctgata tcaatagttt tattgaacta tatattaaaa    120
tcactaacta gtgcgatgga cttcataatt tatagatttc ttttacttat tgttattgca    180
tcacctttg ttaaaacaca aaattatgga attaatttac cgatcactgg ctccatggat    240
acagcatatg caaattcatc acagcaagaa acatttttga cttcaacgct atgcttatat    300
tatcctacag aagcgtcaac tcaaattgga gatacggaat ggaaggatac tctgtcccaa    360
ttattcttga ctaaagggtg gccaactgga tcagtctatt ttaaagaata caccgatatc    420
```

```
gcttcattct caattgatcc gcaactttat tgtgattata atgttgtact gatgaagtat      480
gattcaacgt tagagctaga tatgtctgaa ttagctgatt taattctaaa tgaatggtta      540
tgtaacccaa tggatataac attatattat tatcagcaaa cagatgaagc gaataaatgg      600
atatcgatgg gacagtcttg taccataaaa gtatgtccat tgaatacgca gactttagga      660
ataggttgta ttaccacaaa tacagcgaca tttgaagagg tggctacaag tgaaaaatta      720
gtaataaccg atgttgttga tggtgtgaac cataaacttg atgtgactac aaatacctgt      780
acaattagga attgtaagaa gttgggacca agagaaaatg. tagcgattat acaagtcggt      840
ggctcagatg tgttagatat tacagcggat ccaactactg caccacaaac tgaacgtatg      900
atgcgagtaa attggaagaa atggtggcaa gttttctata cagtagtaga ttatattaat      960
cagattgtgc aagttatgtc caaaagatca cggtcattaa attcagcagc tttttactat     1020
agggtttgat atatcttaga ttagaattgt atgatgtgac c                         1061
```

```
<210> 18
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G9 strain 02-22 capsid protein VP7 gene

<400> 18
ggctttaaaa gagagaattt ccgtctggct agcggttagc tccttttaat gtatggtatt       60
gaatatacca caattctaac ctttctgata tcaatagttt tattgaacta tatattaaaa      120
tcactaacta gtgcgatgga ctttataatt tatagatttc ttttacttat tgttattgca      180
tcatcttttg ttaaaacaca aaattatgga attaatttac cgatcactgg ctccatggat      240
acagcatatg caaattcatc acagcaagaa acattttga cttcaacgct atgcttatat        300
tatcctacag aagcatcaac tcaaattgga gatacggaat ggaaggatac tctgtcccaa      360
ttattcttga ctaaagggtg gccaactgga tcagtctatt ttaaagaata cactgatatc      420
gcttcattct caattgatcc acaactttat tgtgattata atgttgtact gatgaagtat      480
gattcaacgt tagagctaga tatgtctgaa ttagctgatt taattctaaa tgaatggtta      540
tgtaacccaa tggatataac attatattat tatcagcaaa cagatgaagc gaataaatgg      600
atatcgatgg gacagtcttg taccataaaa gtatgtccat tgaatacgca gactttagga      660
ataggttgta ttaccacaaa tacagcgaca tttgaagagg tggctacaag tgaaaaatta      720
gtaataaccg atgttgttga tggtgtgaac cataaacttg atgtgactac aaatacctgt      780
acaattagga attgtaagaa gttaggacca agagaaaatg tagcgattat acaagtcggt      840
ggctcagatg tgttagatat tacagcggat ccaactactg caccacaaac tgaacgtatg      900
atgcgagtaa attggaagaa atggtggcaa gttttctata cggtagtaga ttatattaat      960
cagattgtgc aagttatgtc caaaagatca cggtcattaa attcagcagc tttttactat     1020
agggtttgat atatcttagg ttagaattgt atgatgtgac ca                        1062
```

```
<210> 19
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G3 strain MaCH09004 outer capsid protein (VP7) gene,
      complete cds

<400> 19
ggctttaaaa gagagaattt ccgtctggct agcggttagc tccttttaat gtatggtatt       60
gaatatacca cagttttaac ctttttgata tcagttatat tgttgaatta cgtáctcaaa      120
tccttaacta gaataatgga ctttattatt tacagatttc ttttaattat agttatatta      180
tcaccactcc ttaatgcaca aaattatgga ataaatcttc cgattactgg ctcaatggac      240
acaccatata cgaactcaac gcgagaggaa gtattcctaa cttcgacttt atgtttgtat      300
tacccaactg aagcagcaac agaaataaat gataattcat ggaaggatac actttctcag      360
ctatttttaa tcaaaggatg gccaacagga tctatttatt ttaaagatta tactgatatt      420
gcctcgtttt cagtcgatcc acaactgtat tgtgattata atttggtatt aatgaaatat      480
gacgctacac tgcaactgga catgtccgaa ctagcagatt tgttacttaa tgagtggtta      540
```

```
tgtaatccta tggatattac tttgtattat tatcaacaaa ctgatgaggc aaataaatgg     ouu
atttcaatgg gatcatcttg tactataaag gtatgtccac taaatacgca aacattagga     660
attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaatta     720
gtgattactg acgttgtaga tggagtcaat cataaattga acgtgacaac aaacacttgt     780
acgattcgaa attgtaagaa attaggacca agggaaaacg tagcagttat acaggtaggt     840
ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg     900
atgcgagtga attggaagaa atggtggcaa gtgttttata caatagttga ctacgtgaat     960
caaattgtgc aagcaatgtc caaaagatcg agatcattaa attctgctgc attttactac    1020
agagtataga tatagcttag attagaattg tatgatgtga cc                       1062
```


<210> 20
<211> 981
<212> DNA
<213> Human rotavirus

<220>
<223> G12 VP7 gene for capsid protein, complete cds

<400> 20
```
atgtatggta ttgaatatac cacaattcta accttttttga tatcaattgt tctattaaat     60
tatatattaa aatcaataac taatataatg gactttatca tatatcggtt tttactaata    120
gttgttgtca tgctgccatt tattaaagct caaaattatg gaataaatct tccaataaca    180
ggttctatgg ataccgcata tacaaactcc acacaacaag agaattttat gacttccact    240
ttatgcttat attatccaag ttcagtcacg actgaaataa ctgaccccga ttggacgaac    300
acactgtcac aacttttcat gactaaagga tggccgacaa attccgtcta cttcaagagt    360
tatgctgata tagcgtcctt ctctgtagat ccgcagttat attgtgatta caatattgtg    420
ttagtacagt accaaaattc attagcgttg gatgtctcag aacttgctga tttaatttta    480
aatgaatggt tatgtaatcc gatggacgta acgttgtact attatcaaca aacagatgaa    540
gcgaataaat ggatatcaat gggagaatca tgtacggtta aagtatgtcc cttaaatacg    600
caaactttag gaattggatg tacaacaacc gacgtcacaa catttgaaga ggtagcaaac    660
gcggaaaaat tagtaataac tgacgtcgtg gatggagtca atcacaagat taatattaca    720
atgaatacat gtactatacg gaattgcaaa aagttaggac cgagggaaaa tgtagcaatt    780
atacaagtag gtggttctga cgtcatagac ataacagcag atccaacaac gatcccacaa    840
actgaaagaa tgatgcgaat aaattggaaa aaatggtggc aggtgtttta taccgtagta    900
gattacataa atcaaatagt tcaggtaatg tccaaacgat caagatcact aaattcagct    960
gcttttact acagaatttta g                                               981
```


<210> 21
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G3 strain MaCH09404 outer capsid protein (VP7) gene,
      complete cds

<400> 21
```
ggctttaaaa gagagaattt ccgtctggct agcggttagc tccttttaat gtatggtatt     60
gaatatacca cagttttaac ctttttgata tcagttatat tgttgaatta cgtactcaaa    120
tccttaacta gaataatgga ctttattatt tacagatttc ttttaattat agttatatta    180
tcaccactcc ttaatgcaca aaattatgga ataaatcttc gattactgg ctcaatggac    240
acaccatata cgaactcaac gcgagaggaa gtattcctaa cttcgacttt atgtttgtat    300
tacccaactg aagcagcaac agaaataaat gataattcat ggaggatac actttctcag    360
ctattttaa tcaaaggatg gccaacagga tctatttatt ttaaagatta tactgatatt    420
gcctcgtttt cagtcgatcc acaactgtat tgtgattata atttggtatt aatgaaatat    480
gacgctacac tgcaactgga catgtccgaa ctagcagatt tgttacttaa tgagtggtta    540
tgtaatccta tggatattac tttgtattat tatcaacaaa ctgatgaggc aaataaatgg    600
atttcaatgg gatcatcttg tactataaag gtatgtccac taaatacgca aacattagga    660
```
```

```
attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaatta    720
gtgattactg acgttgtaga tggagtcaat cataaattga acgtgacaac aaacacttgt    780
acgattagaa attgtaagaa attaggacca agggaaaacg tagcagttat acaggtaggt    840
ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg    900
atgcgagtga attggaagaa atggtggcaa gtgttttata caatagttga ctacgtgaat    960
caaattgtgc aagcaatgtc caaaagatcg agatcattaa attctgctgc attttactac   1020
agagtataga tatagcttag attagaattg tatgatgtga cc                      1062
```

<210> 22
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> HIV epitope

<400> 22

Arg Thr Pro Lys Ile Gln Val
1   5

<210> 23
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<223> HIV epitope

<400> 23

Glu Leu Asp Lys Trp Ala
1   5